

Water Line of Business - Overview and Priorities

Customer Review Panel

January 31, 2020

Today's Discussion

1. Quick Background
 - Overview
 - Finances
 - Service Levels and Goals
2. Current SBP Action Plans and next steps for 2021-2026
3. Strategic Priorities for 2021-2026



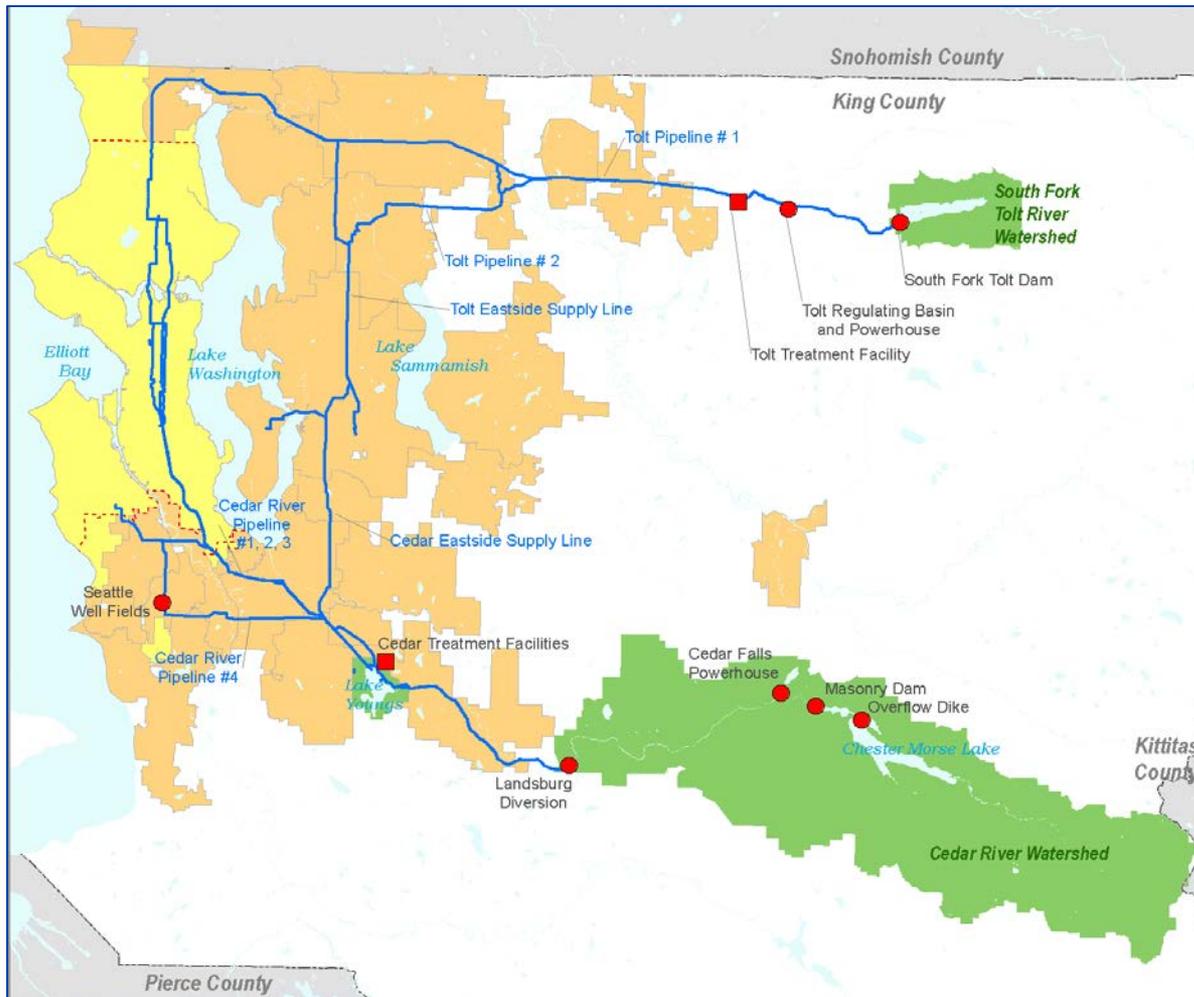
The Big Picture: Overview Statistics

- 1.4 million customers
 - About half Seattle retail, half wholesale
- 100,000 acres in two watersheds, seasonal wellfield
 - Seattle City Light hydroelectric plants
- 193 miles of transmission pipelines
- 1,680 miles of distribution mains
- 250+ million gallons of treated water storage
- Many pump stations, valves, fire hydrants, service lines

- # Employees: 364
- # Unions: 12

- Regulators:
 - Department of Health
 - Department of Ecology

The Big Picture: Seattle's Regional Water System



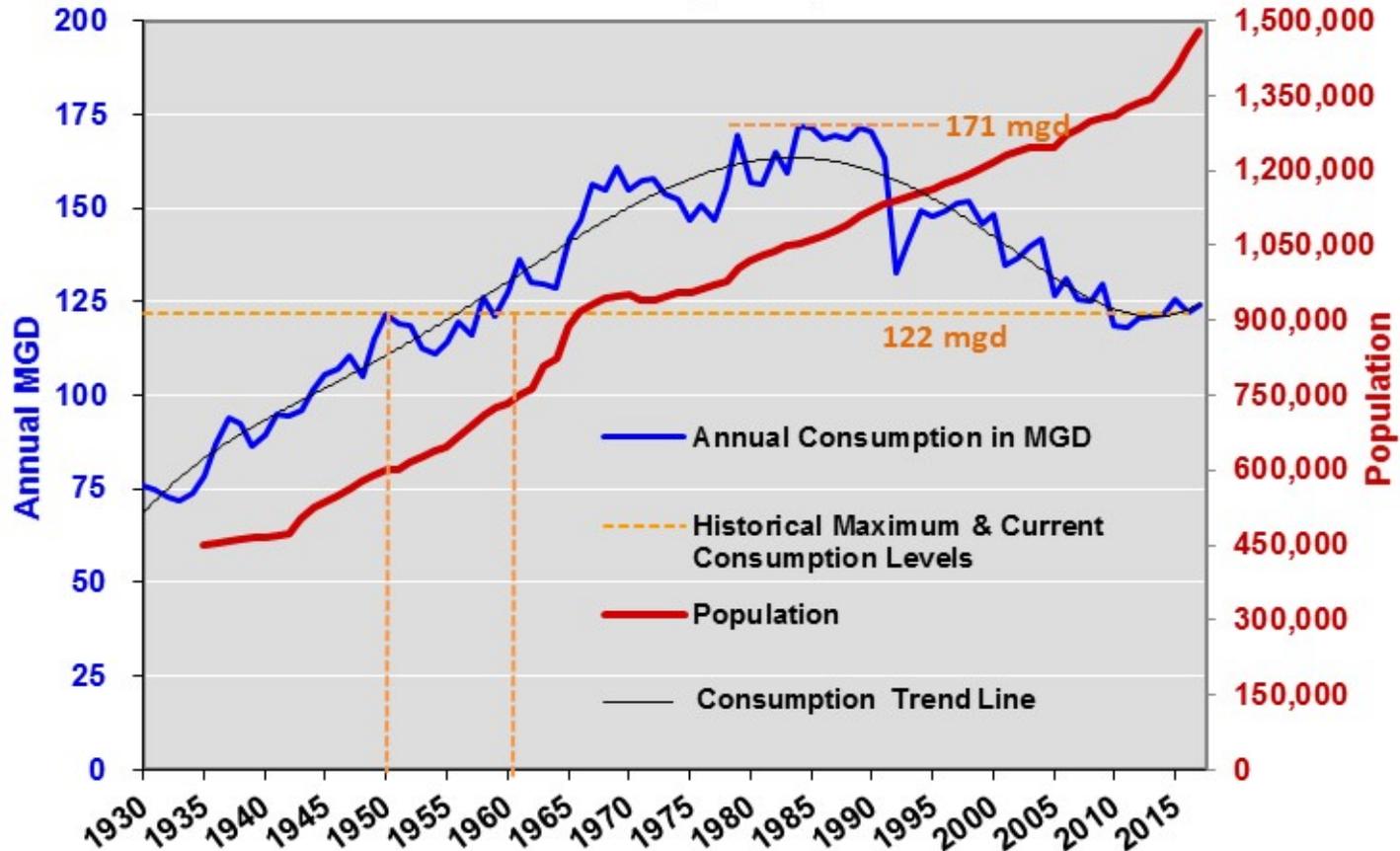
Seattle Retail
Service Area

Wholesale
Customers

Watersheds

The Big Picture: Water Consumption and Water Conservation

Total Seattle Regional Water System Annual Demand
in Millions of Gallons per Day: 1930-2017



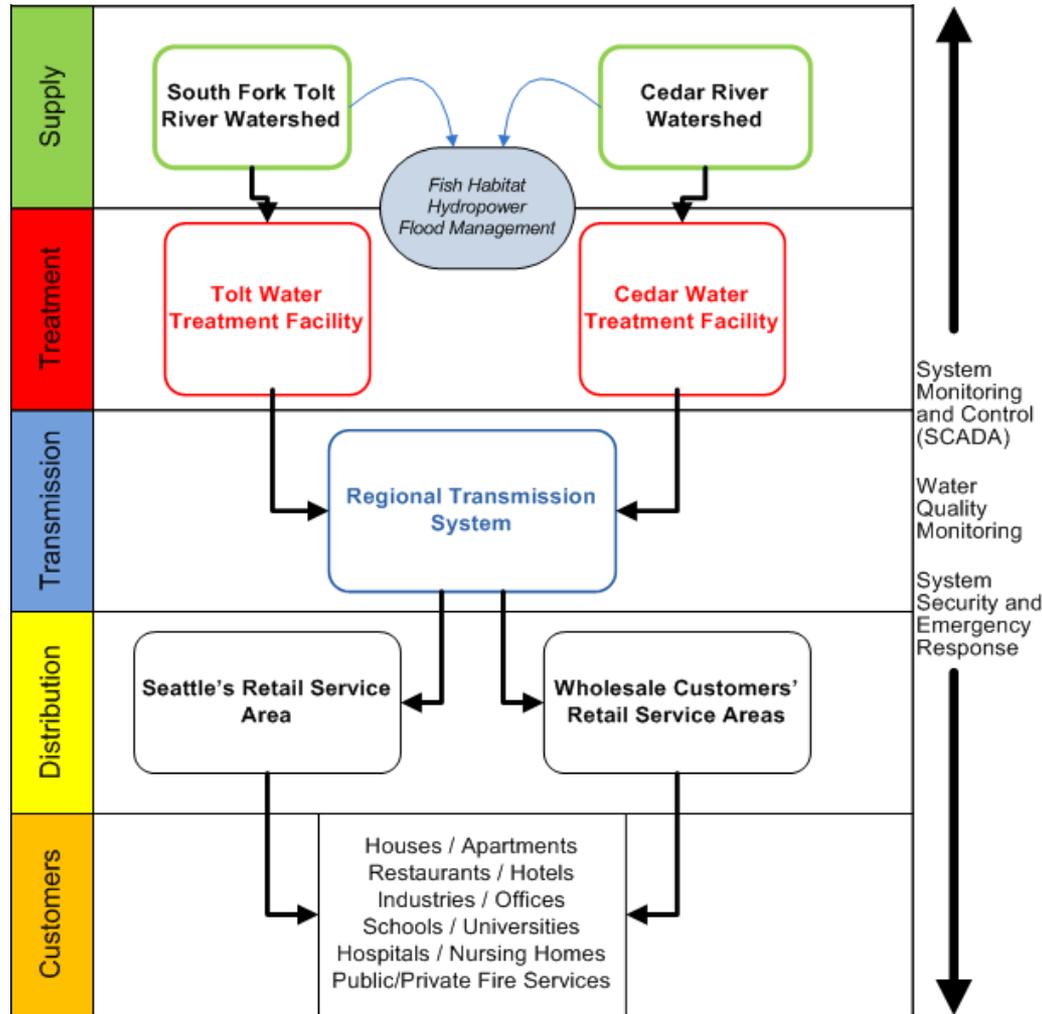
Seattle Public Utilities

The Big Picture: Overview Statistics for Rates and Bills

Rates and Bills

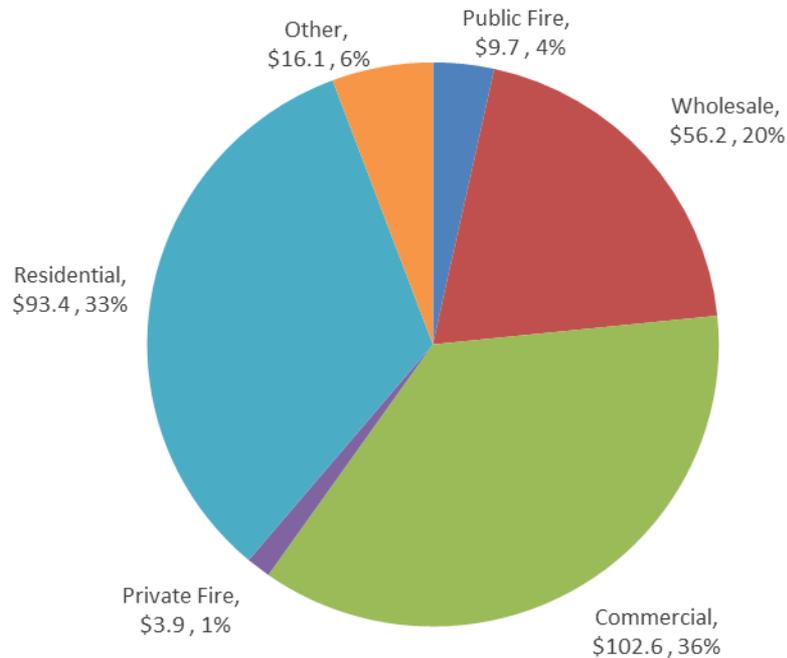
Length of Current Rate Path	3 years; 2018-2020
Billing Mechanism	Combined Utility Bill
2019 Operating Revenue	\$282 million
Number of Customer Accounts	<ul style="list-style-type: none">▪ 192,000 retail accounts▪ Water also sold to Cascade Water Alliance and 18 other wholesale customers
Rate Methodology	<ul style="list-style-type: none">▪ Retail bills based on metered water usage and meter size, with higher seasonal rates in the summer▪ Wholesale bills based on contracts and metered water use
Retail Customer Classes	Two subclasses: residential and commercial; very similar rates

The Big Picture: Drinking Water Process from Source to Tap

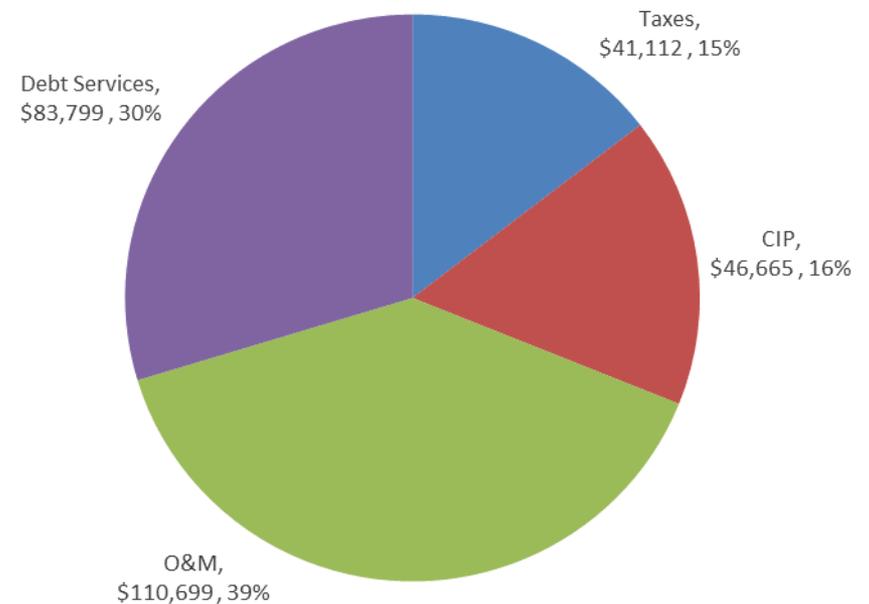


Sources and Uses of Drinking Water Funds

Water Fund Revenues and Expenses (2019, \$ in Millions)



Revenues



Expenses

Drinking Water Financial Indicators

Water Fund				
Financial Overview				
Preliminary 4th Quarter 2019				
Indicator	Target	Rate Study	Current Projection	Comment
Debt Service Coverage	1.70x	1.93x	2.09x	Above Target
Net Income	Generally Positive	\$48.2M	\$56.3M	Above Target
Cash-Funded CIP (% Rate Study Average)	20% min. over rate study period*	34.3%	45.0%	Above Target
& Cash Contribution		\$41.8M	\$23.1M	
Year-End Operating Cash	\$10.6M (1/12th Operating Expense)	\$32.0M	\$125.5M	Above Target

* Formal policy target is based on average across rate setting period, but also provides for a 15% annual minimum for rate setting purposes

Drinking Water Rates and Affordability

- Rate path

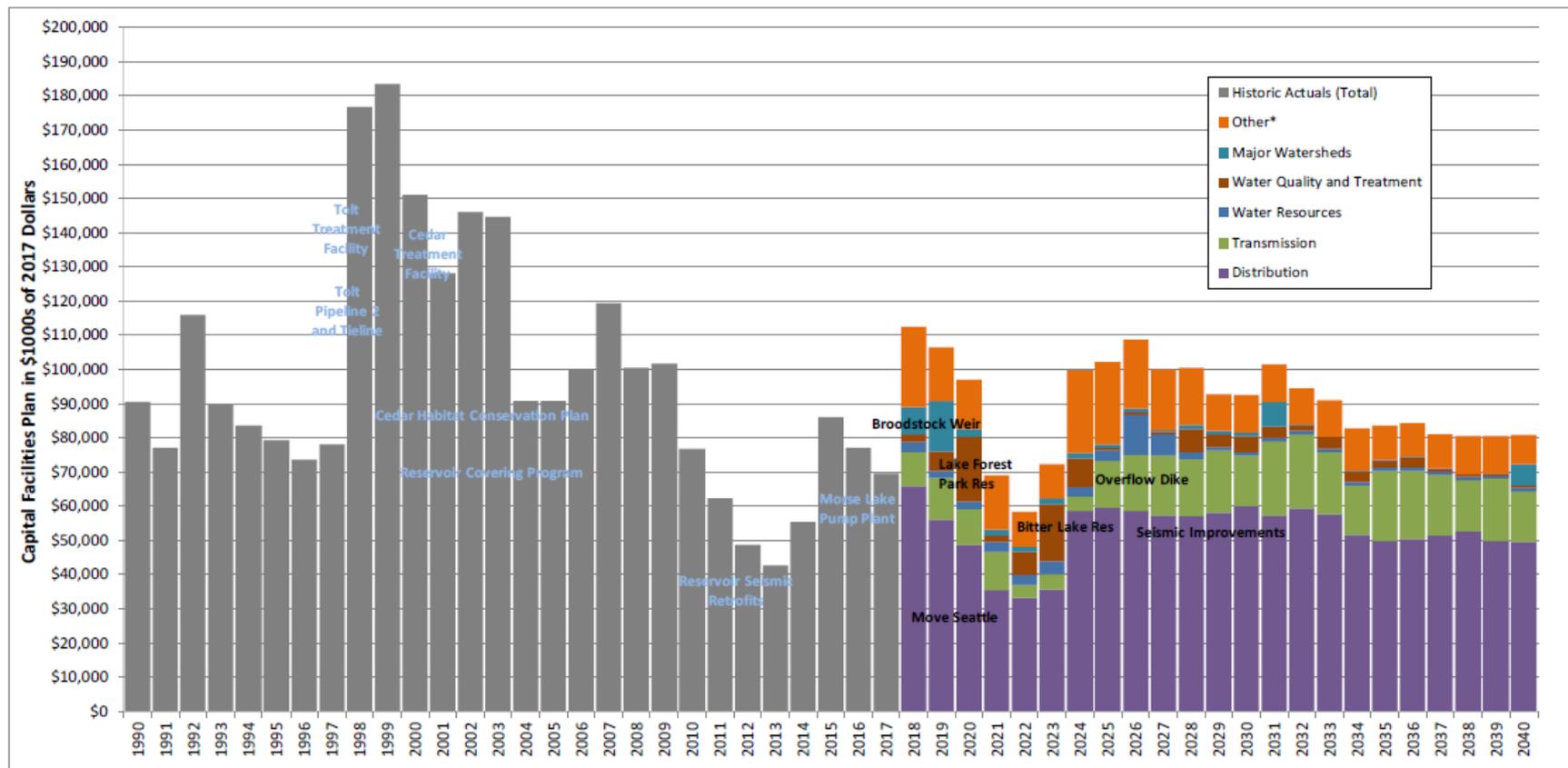
Strategic Business Plan	2018	2019	2020	2021	2022	2023	2018-23
Water	2.0%	2.5%	3.7%	5.0%	4.1%	5.0%	3.7%
Wastewater	4.1%	8.1%	9.9%	8.9%	1.3%	2.6%	5.8%
Drainage	10.7%	9.2%	9.7%	9.9%	7.9%	4.7%	8.7%
Solid Waste	3.1%	3.3%	4.0%	3.0%	3.8%	2.8%	3.5%
Combined	4.3%	5.7%	7.0%	6.8%	3.7%	3.6%	5.2%

Updated	2018	2019	2020	2021	2022	2023	2018-23
Water	2.0%	2.5%	3.7%	5.0%	4.1%	5.0%	3.7%
Wastewater	4.1%	7.4%	7.4%	7.4%	4.5%	2.4%	5.5%
Drainage	10.7%	8.0%	8.0%	8.0%	8.0%	9.0%	8.6%
Solid Waste*	3.1%	3.3%	3.2%	2.9%	2.9%	3.1%	3.1%
Combined	4.3%	5.3%	5.6%	5.9%	4.6%	4.3%	5.0%

- Affordability metrics (being developed)

Where We Are in Our Capital Investments

**Historic and Proposed Capital Facilities Plan Spending through 2040
(2018-2023 Adopted CIP, plus 2024-2040 Estimate, in thousands of 2017 dollars)**



* Other includes Fleets, Facilities, Security, Information Technology, SCADA and other miscellaneous projects.

Drinking Water Service Levels & Goals

Service Levels

- Provide reliable, high-quality, aesthetically pleasing water that meets all regulatory requirements
- Meet all environmental requirements, including instream flow requirements and performance commitments in tribal and agency agreements / permits
- Meet requirements for system pressure and flow
- Limit unplanned outages in the water system
- Respond promptly to customer issues

Goals

- Environmental stewardship
- Public health protection
- Community centered
- Affordability and equity
- Resiliency
- Long term asset management
- Long term financial stability



SBP Action Plans - What's Changed since 2017?

2017

- Move Seattle levy – funding for utility impacts
- Better understanding of seismic hazards in the Puget Sound region
- Drought of 2015
- Continued study of climate change
- Increasing costs for street work
- Keeping up with growth (new taps)

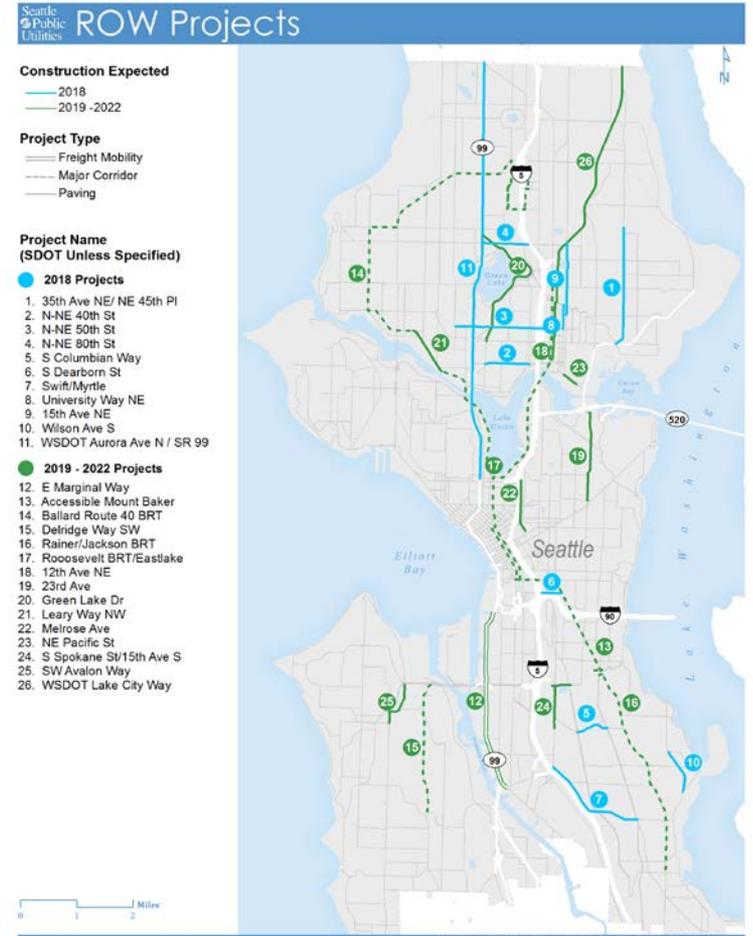
Now

- Some Move Seattle projects delayed
- Seismic study complete, implementation started
- More climate change analysis underway
- Street costs still increasing, new tap volume still high

SBP Action Plans

- Action Plan #2 – Fund Opportunity Infrastructure Work that Supports Transportation Projects
- Action Plan #3 – Expand Maintenance of the Water Distribution System
- Action Plan #4 – Expand Water Modeling

Refer to Action Plan summary table



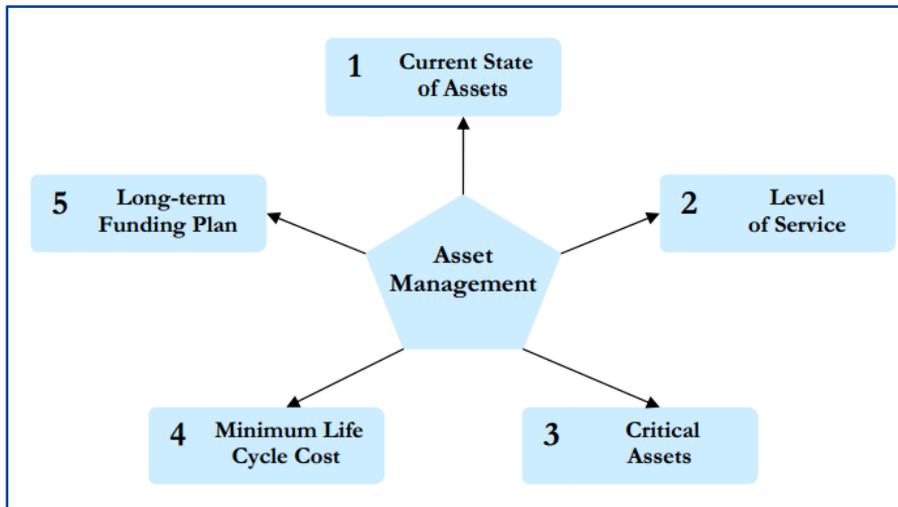
SBP Strategic Priorities for the next 3-6 Years

- Aging infrastructure / asset management
- Seismic study implementation
 - Short-term actions
 - Long-term capital planning
- Climate change
 - Water supply for people and instream flow requirements
 - Watersheds, including wildfires



Aging Infrastructure

- Life cycle management for sustainability
- Asset-by-asset approach, plus high-level strategic planning to tie it all together
- Working on a utility-wide assessment of asset management



Discrete Assets (Easier to Inspect)

Asset	Condition	Certainty	Notes
Cedar Watershed Reservoirs and Dams	Green	Green	
Tolt Watershed Reservoirs and Dams	Green	Green	
Lake Youngs Reservoir and Dams	Yellow	Green	<i>Cascades Dam</i>
Transmission-Area Buildings	Yellow	Green	<i>Older buildings</i>
In-Town Buildings	Yellow	Green	<i>Older buildings</i>
Landsburg Buildings	Green	Green	
Water Treatment Plants	Green	Green	
Concrete Reservoirs (Treated Water)	Green	Green	
Steel Water Tanks and Standpipes	Yellow	Green	<i>Coatings, seismic</i>
Water Pump Stations	Green	Green	

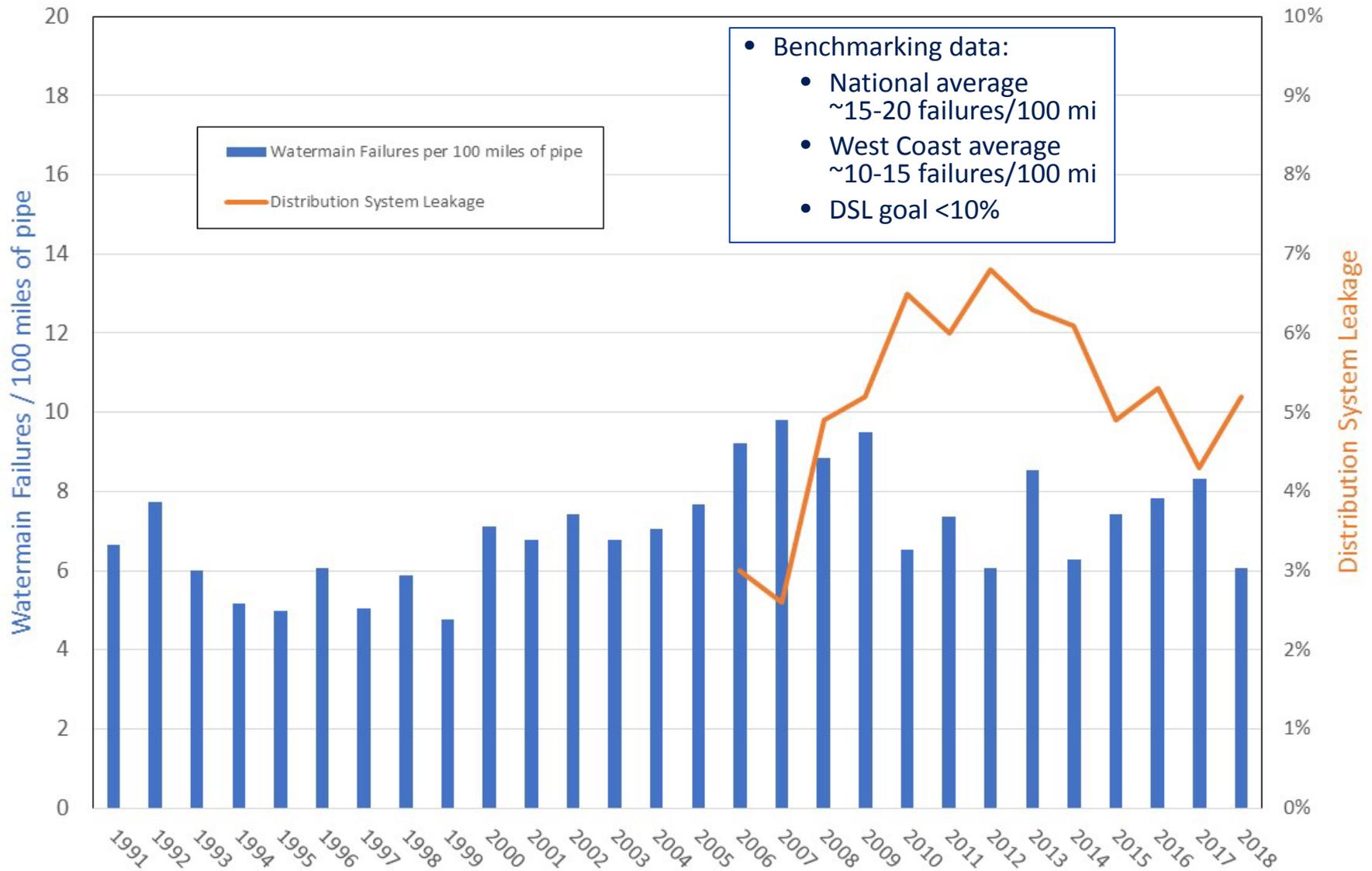
Distributed Assets (More Difficult to Inspect)

Asset	Condition	Certainty	Notes
Cedar Watershed Transportation System	Green	Green	
Tolt Watershed Transportation System	Green	Green	
Water Transmission Pipes and Appurtenances	Yellow	Red	<i>More inspection needed, difficult</i>
Water Distribution Pipes	Yellow	Red	<i>Cannot inspect easily</i>
Water Utilidors	Yellow	Yellow	<i>More inspection needed, difficult</i>
Water Meters (Wholesale and Retail)	Green	Yellow	<i>Testing frequency</i>
Water Valves	Yellow	Red	<i>Deferred maintenance</i>
Water Hydrants	Yellow	Green	<i>Deferred maintenance</i>

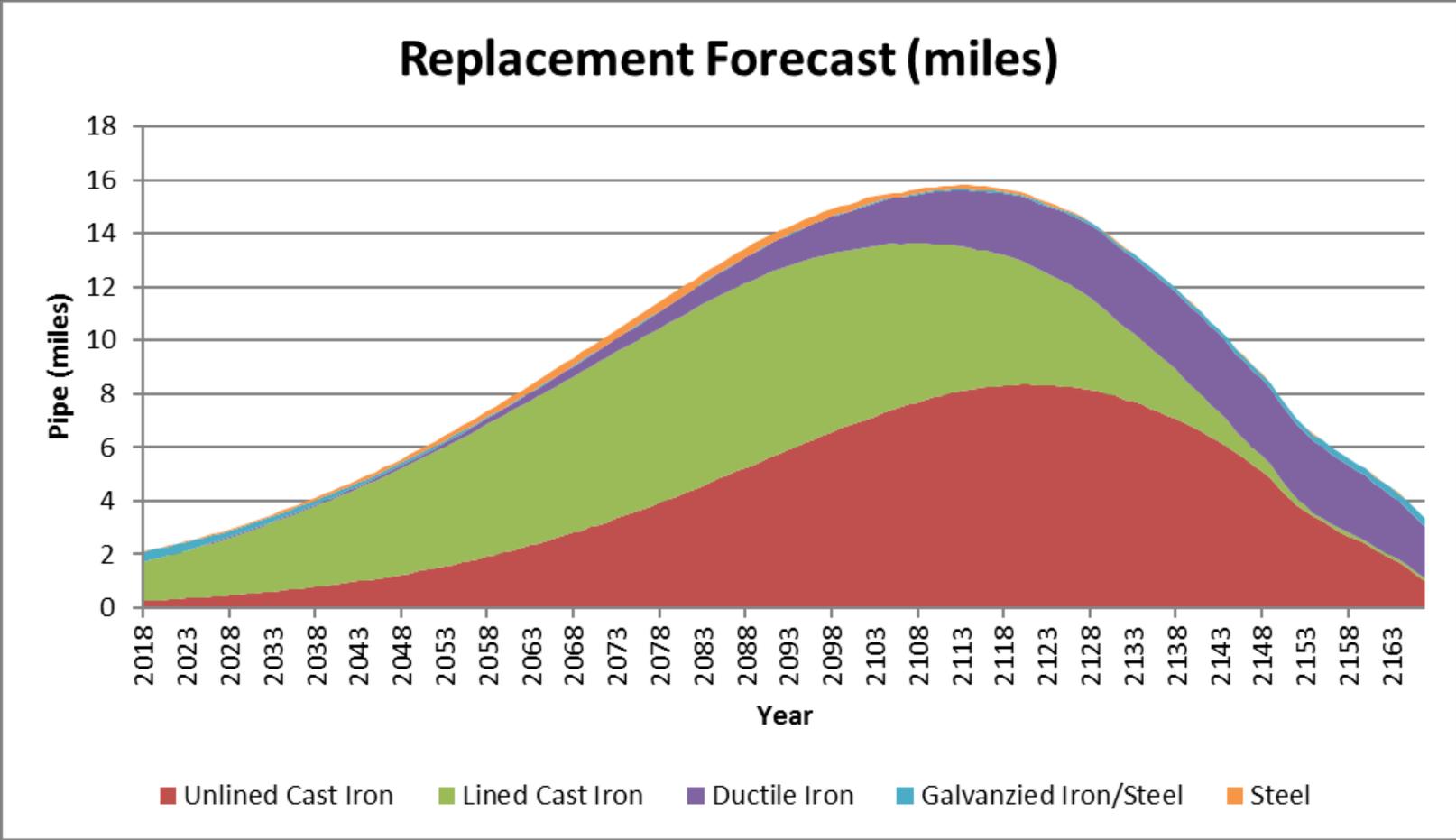
Example of Distributed, Difficult to Inspect Assets: Data-Driven Decision Making

- Water mains
 - Many of them
 - Difficult to inspect, estimate useful remaining life
- Monitor indirect trends
 - Break rates
 - Leakage rates
- Look at new technologies
 - Cost savings for installation
 - Better inspection methods
- Adjust replacement rate based on data

SPU - Watermain Failures and Distribution System Leakage



Replacement & Renewal Strategy - Long Term



Aging Infrastructure: Rate Path Impacts

- Recommended to ramp up watermain replacement program
 - Currently 1 mile/year
 - Seek to ramp up to 2 miles/year in the next 6 years



Aging Infrastructure: Performance Measurements

- Continue to track and report watermain break trends
- Report on any changes in the target replacement rate, with associated rate impacts
 - Adjust long-term plan based on data
- Test technologies such as pipe lining instead of "dig and replace"

Seismic: Mitigation Approach - Short Term Measures (Next 15 to 20 Years)

- Enhance emergency preparedness and response planning
 - Earthquake-specific response plan
 - Significantly augment pipeline repair material stocks
 - Assess adequacy/improve emergency drinking water
- Develop/implement isolation and control strategies
 - Reservoir isolation valves
 - Explore isolating areas of large amounts of pipe damage
 - Add valves to make isolation easier

Seismic: Mitigation Approach - Long Term Measures (Next 50 Plus Years)

- Build It Right (Now Until Forever)
 - Use earthquake-resistant pipe when pipe is replaced
 - Design new facilities to remain functional
- Upgrade Vulnerable Critical Facilities (Next 50 Plus Years)
 - Most vulnerable transmission pipelines locations (Cedar system has top priority)
 - Critical facilities
 - Large volume reservoirs
 - Key pump stations and support facilities
 - Life-safety

Seismic: Capital Planning Recommendations

- \$15 to \$20 million per year – 50+ years
- Refer to Seismic Study Executive Summary for a list of proposed projects
- Options analysis for all projects
 - Proactive upgrade options
 - Operational response until replacement
 - Example: a vulnerable pipe crossing
 - Proactive replacement/seismic upgrade of pipe
 - Open trench replacement
 - Slip-line pipe
 - Wait until condition-related replacement
 - Install emergency connections
 - Place spare pipe immediately adjacent



Seismic: Rate Path Impacts

- Recommended a 50-year capital improvements program based on prioritization and affordability considerations
- Considered accelerating 50-year CIP into shorter timeframe
 - Rate impact significant

Seismic: Performance Measurements

- Implement short-term recommendations
- Implement capital projects compared to proposed schedule
 - Use of asset management principles for options analysis balancing cost and risk

Climate Change

- Water Supply
 - Less snowpack for spring reservoir refill
 - Drier summers, lower reservoir drawdown in summer/fall
 - Wetter winters, more dynamic flood mgmt
- Watersheds
 - Drier summers, higher fire risk
 - Wetter winters, flood impacts



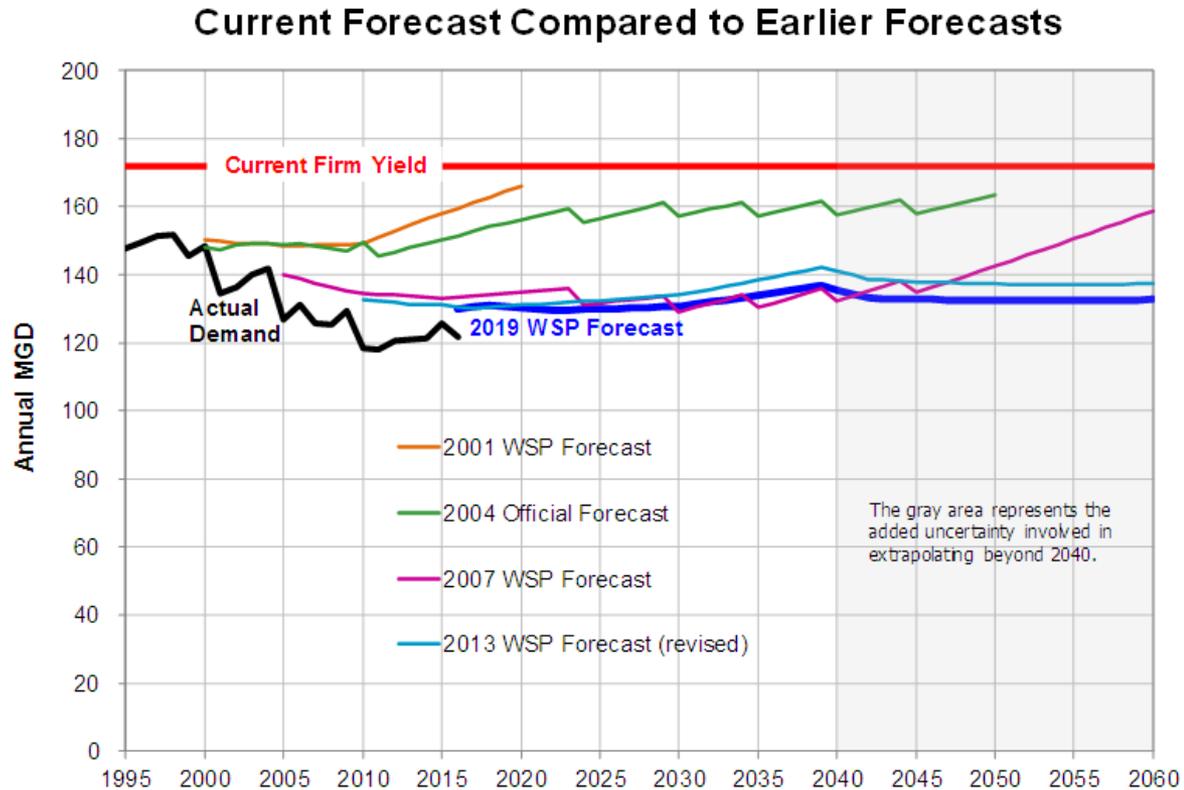
Climate Change and Water Supply

- Currently in third round of climate change planning since 2000
 - Previous studies used small numbers of global climate models
 - Current study uses many more models
- Using more climate models resulted in more uncertainty
 - Pivoting away from specific climate-based predictions
 - Moving towards planning based on drivers for future adaptation options, such as lower snowpack and more precipitation falling as rain



Climate Change and Water System Plan (WSP) Forecasts

- Currently have extra capacity in the drinking water system
- Anticipated to remain that way for many decades...
 - But must assess climate change impacts on supply and demand



Climate Change and Watersheds

- Completed watershed vulnerability to climate change
- Recommended adaptation strategies to increase resilience
 - Forests and streams
 - Road crossings
- Conducting wildfire risk assessment

Climate Change: Rate Path Impacts

- Recommended to perform additional studies
 - No significant O&M or capital projects right now
- Additional studies may inform future needs for added O&M or capital needs



Climate Change: Performance Measurements

- Water Supply
 - Complete adaptation planning with different strategies and options to improve resiliency
 - Prioritize lower cost options that are easier to implement and resolve constraints now and, in the future
 - Identify triggers that might move SPU towards more costly water supply alternatives
- Watersheds
 - Implement adaptation strategies to improve resiliency
 - Monitor to determine effectiveness, learn and continue to adapt
 - Define wildfire risk and identify triggers that may prompt SPU to consider additional strategies
- Report back on potential rate impacts, if studies recommend significant O&M or CIP projects